

Remarks

This is in response to the final Office Action mailed on April 8, 2005. Claims 1, 13, and 18 are amended, support for the amendments being found, for example, at page 15, line 10 through page 16, line 3 of the present application. Claims 1-27 remain pending. Reconsideration and allowance of all claims are respectfully requested in view of the following remarks.

I. Claim Rejections - 35 U.S.C. § 103

In the Office Action at paragraph 4, claims 1-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Goodwin et al. (US 6,158,049) in view of Levine et al. (US 6,349,406) and further in view of Roediger et al. (US 5,960,198). This rejection is respectfully traversed, and the correctness of the rejection is not conceded. Reconsideration is requested for at least the following reasons.

A. Claims 1-12

Claim 1 recites, among other limitations, a performance code marker module for obtaining and storing the run-time internal state data for later retrieval at predefined points corresponding to permanently inserted performance markers, wherein the application program calls the performance code marker module each time one of the permanently inserted performance markers is reached.

As noted in previous responses, permanently inserted performance markers are intended to be in the final version of an application program that is ultimately delivered to end users. The permanently inserted performance markers impose little, if any, overhead to operate and thus are not removed from the application program when testing of the application is completed.

In addition, the application program is configured to call performance code marker module each time one of the permanently inserted performance markers is reached. If run-time internal state data is not being collected, the performance code marker module simply returns to the calling application program. Application, p. 15, l. 10 - p. 16, l. 3. In this manner, permanently inserted performance markers allow performance testing on a version of the application program that is identical to the version that is ultimately considered the delivered product, thereby enhancing the reliability of such testing.

The rejection concedes that Goodwin fails to disclose permanently inserted performance markers, as recited by claim 1. Levine likewise fails to disclose or suggest permanently inserted performance markers.

The rejection cites column 8, lines 15-37 of Roediger as disclosing insertion of instrumentation into code along with a profiling bit that can be enabled or disabled, allowing the instrumentation to be present in the code even when profiling is not desired. The rejection further states that it would have been obvious to include permanently inserted performance markers as per the teachings of Roediger. This characterization of Roediger is respectfully traversed, and reconsideration is respectfully requested for at least the following reasons.

i. Roediger does not suggest permanently inserted performance markers

It is respectfully suggested that Roediger fails to disclose or suggest permanently inserted performance markers. Roediger identifies three phases for its profiling system: (1) an instrumentation phase where a program is retrofitted with "information collecting" instructions; (2) a benchmarking phase where the program is run and profile information is collected; and (3) an optimization phase where the program is recompiled and modified in light of the profile information. Roediger, col. 4, ll. 25-31. Roediger therefore differentiates between the instrumentation and benchmarking phases, and the optimization phase, where the program is optimized to form the delivered product. Roediger teaches away from the inclusion of instrumented code in the delivered product and therefore does not suggest permanently inserted performance markers.

Roediger further states: "Instrumented computer program 28 will be executed on a set of inputs believed to represent a typical runtime environment." Roediger, col. 8, ll. 30-32. Therefore, Roediger only discloses instrumented code that is used in a simulated environment with a set of inputs "believed to represent a typical runtime environment." See also Roediger, col. 6, ll. 43-47 (noting that the instrumented code is executed using simulated inputs). Roediger consequently fails to disclose or suggest that the instrumented program includes permanently inserted performance markers.

- ii. Roediger does not suggest calling a performance code marker module each time a permanently inserted performance marker is reached

Roediger discloses using a dedicated bit that is checked by the instrumented program prior to the execution of any instrumented code. If the bit is enabled, the instrumented code is executed. If the bit is not enabled, the instrumented code is skipped. Roediger, col. 6, ll. 21-32. The system disclosed by Roediger therefore suffers from the same problem as other systems in that, when profiling is disabled, sections of instrumented code are skipped. The skipping of instrumented code by the program creates performance differences between the program with instrumentation enabled and the program with instrumentation disabled, thereby resulting in unreliable testing. See Application, p. 2, l. 3 - p. 3, l. 2.

In sharp contrast, claim 1 recites that the application program calls the performance code marker module each time one of the permanently inserted performance markers is reached. In this manner, the application program performs in a similar manner whether or not run-state data is collected, thereby enhancing the reliability of performance testing.

Reconsideration and allowance of claim 1, as well as claims 2-12 that depend therefrom, are respectfully requested for at least these reasons.

B. Claims 13-27

Claims 13 and 18 both recite determining if run-time internal state data is to be collected at each code marker by calling a performance code marker module. Therefore, claims 13 and 18, as well as claims 14-17 and 19-27 that depend respectively therefrom, should be allowable for at least reasons similar to those provided above with respect to claim 1. Reconsideration and allowance are respectfully requested.


II. Conclusion

The remarks set forth above provide certain arguments in support of the patentability of the pending claims. There may be other reasons that the pending claims are patentably distinct over the cited references, and the right to raise any such other reasons or arguments in the future is expressly reserved.

For all of the above reasons, the pending claims are patentable over the prior art of record. Favorable reconsideration in the form of a Notice of Allowance is requested. Please contact the undersigned attorney with any questions regarding this application.

Respectfully submitted,
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